UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON D.C., 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

Environmental Protection Agency on Neonicotinoid Product Stewardship
Supporting Document to Neonicotinoid Registration Review Dockets
January XX, 2020

I. Introduction

The Environmental Protection Agency (EPA or the agency) is publishing the Proposed Interim Registration Review Decision (PID) for the four nitroguanidine neonicotinoids (clothianidin, dinotefuran, imidacloprid, and thiamethoxam) for public comment. The PIDs lay out proposed label mitigation to reduce potential ecological risk to pollinators, aquatic invertebrates, birds, and mammals. Effective neonicotinoid product stewardship, achieved through education and outreach, is an important aspect of environmental protection beyond label mitigation.

In addition to establishing new requirements for product labels, EPA's registration review provides an opportunity to inform stakeholders and the public about opportunities to minimize potential risks to pollinators and help promote pollinator health more generally. Beyond the mitigation measures required in the PIDs, voluntary stewardship activities and use of best management practices (BMPs) can be effective in further reducing exposure to pollinators. Examples of these activities include promoting the creation of more pollinator habitat, improving pesticide users' understanding and adherence to label directions, promoting integrated pest management (IPM) solutions, and increasing awareness of potential impacts to pollinators through education. Education can be implemented through training courses, pamphlets, workshops/conferences, and through tv, radio, social media and other communication platforms.

EPA's authority to implement risk mitigation measures through changes to labels, such as in the case of the neonicotinoids, is useful to reduce risks from pesticide use, but may not impact other factors that can influence pollinator health. In addition, effective stewardship practices such as BMPs can provide users the knowledge to make better informed decisions and practices that protect pollinators, with less impact to the utility of important chemicals for pest management. Although the labels are considered protective against any unreasonable risk to humans or the environment, by promoting good stewardship practices, the agency can encourage other efforts to further protect vulnerable organisms.

II. Pollinator Stewardship

Based on the most recent bee risk assessments for the neonicotinoids[1], the agency has identified potential risks to bees resulting from certain neonicotinoid uses. Although the risk assessments focused on honeybees (*Apis mellifera)*, which play an important role in commercial pollination services for certain crops, the agency recognizes that numerous other species of bees can be affected by pesticide use. In some cases, these non-*Apis* bees (*i.e.;* bee species other than honeybees) – including bumble bees (*Bombus spp.)*, leaf cutting bees (*Megachile rotundata*), alkali bees (*Nomia melanderi*), blue orchard bees (*Osmia lignaria)*, and the Japanese horn-faced bee (*Osmia cornifrons*), are also important in providing vital pollination services along with maintaining biological diversity.

Declines in honeybee colonies throughout North America have been attributed to a multitude of factors. These factors include disease pressure, parasitic pests such as *Varroa* mites, lack of habitat, poor nutrition, and commercial bee management practices, along with exposure to certain pesticides. Under FIFRA, the Office of Pesticide Programs (OPP) addresses potential risk associated with pesticide use by requiring label amendments through its registration review process; however, since multiple factors can influence the strength and survival of bees , and likely impact their ability to tolerate chemical stressors such as pesticides, it is important to address these issues holistically through stewardship efforts.

a) Minimizing potential exposure to pollinators

Pollinator exposure to neonicotinoids can occur directly during applications of neonicotinoids, and indirectly through contact with residues on plant surfaces and through ingestion of residues in nectar and pollen when neonicotinoids are applied as a seed treatment, soil, tree injection, as well as foliar treatments. Although certain labels already limit application to attractive plants at key pollinator exposure periods (*i.e*., during bloom) when crops are most attractive to pollinators, the PIDs require that all neonicotinoid labels also maintain advisory language highlighting potential impacts to bees whenever an application is made. The agency has determined that users, specifically non-professional applicators using products outdoors, should be aware of these potential impacts and have an opportunity to consider impacts to pollinators when they are applying a neonicotinoid product.

Users can take several precautions while using neonicotinoid products to minimize potential exposure to pollinators. Firstly, users should avoid use when bees and other pollinators are actively foraging on pollinator attractive plants. Secondly, users can consider a pesticide's ability to drift to other areas, and be aware of the presence of beehives or highly attractive plants nearby an area of application. With applications to lawns, it's important to mow prior to applications, as this reduces the potential for pollinator attractive weeds that could expose bees to pesticides. Although the cultivation and protection of pollinator habitat is typically encouraged, in this case, taking steps to ensure a lawn is mowed prior to neonicotinoid applications can reduce potential direct exposure to visiting pollinators. Other things the public can do to minimize potential exposure to pollinators includes are listed at [HYPERLINK

[1] Clothianidin: [HYPERLINK "https://www.regulations.gov/docket?D=EPA-HQ-OPP-2011-0865"], Dinotefuran: [HYPERLINK "https://www.regulations.gov/docket?D=EPA-HQ-OPP-2011-0920"], Imidacloprid: [HYPERLINK "https://www.regulations.gov/docket?D=EPA-HQ-OPP-2008-0844"], Thiamethoxam: [HYPERLINK "https://www.regulations.gov/docket?D=EPA-HQ-OPP-2011-0581"]

"https://www.epa.gov/pollinator-protection/what-you-can-do-protect-honey-bees-and-other-pollinators"], and include:

- Reporting bee kills
    - Should a member of the public be aware of a specific pesticide incident involving bees, please report them immediately to the state/tribal lead agency. For contact information for your state, go to: [HYPERLINK "http://www.aapco.org/officials.html"]. Pesticide incidents should also be reported to the National Pesticide Information Center at: [HYPERLINK "http://www.npic.orst.edu"] or directly to EPA at: [HYPERLINK "mailto:beekill@epa.gov"].
- Using best management practices to protect pollinators such as:
    - Reading and following the label in accordance with use
    - Pay attention to warnings affecting bees and other pollinators
    - Understanding how bees can bee exposure, such as drift from nearby flowering plants, and being careful to use these products in a way that reduces such exposure
    - Monitoring and assessing pest populations to determine if levels warrant control
    - Selecting the best combination of pest control options that minimizes risks to pollinators
    - Being aware of non-pesticide [HYPERLINK "https://pesticidestewardship.org/ipm/"] (IPM) alternatives
    - Reducing dust from treated seed described in more detail at: [HYPERLINK "https://www.epa.gov/pollinator-protection/2013-summit-reducing-exposure-dust-treated-seed"]

Educating the public on the potential harmful effects of these products to pollinators and how they can be used safely, is paramount to helping protect and reduce potential exposure. For more information on protecting bees and other insect pollinators, please visit: [HYPERLINK "http://pesticidestewardship.org/PollinatorProtection/Pages/default.aspx"].

b) Encouraging the Cultivation and Protection of Pollinator Habitat

Habitat loss is a significant issue with potential negative impacts on the health of bees. With access to a healthy and diverse diet, bees may be more likely to tolerate various negative stressors such as pests, disease, and exposure to pesticides. As a healthy diet is crucial to maintaining flourishing pollinator populations, and the protection of pollinator habitat is not something that can be directly addressed on a product label, EPA and other government agencies promote pollinator habitat. Many stakeholders, including the federal government (US Department of Transportation and US Department of Agriculture), non-governmental organizations (NGOs), and industry already conduct active education and outreach programs encouraging the protection of pollinator habitats. There are many things that neonicotinoid product users and the public more generally can do to help encourage the protection of pollinator habitat.

Helpful guidance on pollinator protection can be found on the EPA's pollinator protection webpage at: [HYPERLINK "https://www.epa.gov/pollinator-protection"].

III. Stewardship of aquatic ecosystems

Aquatic invertebrates play a crucial role in the ecosystem; they act as a natural filtration system, contribute to maintaining smaller invertebrates and plant population sizes, and are a food source for larger invertebrates and fish species. Thus, declines in aquatic invertebrate populations could affect the health of larger aquatic species such as fish, and greater aquatic ecosystems. Due in part to the neonicotinoids' persistence in the environment, risk assessments for neonicotinoids indicated high potential risk exceedances for aquatic invertebrates. In the PID, EPA has proposed label mitigation to reduce potential exposure to aquatic invertebrates, including targeted annual application rate reductions and drift and runoff management measures, however, additional stewardship measures to better educate the public on IPM, along with spray drift and runoff reduction, spill prevention, and proper disposal could help reduce the potential risks from applications of these pesticides.

IV. Seed stewardship

In the risk assessments associated with the seed treatment of neonicotinoids, potential risks of concern were identified to birds and mammals along from ingestion of treated seeds, and to a lesser extent to aquatic invertebrates from runoff. However, also described in the agency benefits assessments[2] are significant benefits of seed treatment use, including reducing the need for early season neonicotinoid applications, as residual at plant protection is preserved, and reducing the need for additional liquid applications that can potentially drift or runoff from the application site.

Treated seed is most likely to become available to birds and mammals through accidental spills, excess unplanted seed on the edges of the field, shallow planted seed, and the improper disposal of treated seed. In some cases, newly planted, open fields, are less likely to be used for forage by smaller mammals as they provide less cover than no till fields. However, planting on no till fields may not always be a practical form of best management practice to reduce exposure. Another effective method to reduce exposure would be encouraging growers to take additional care when planting treated seed to ensure any exposed seed is cleaned up. The American Seed Trade Organization has published a guide to help educate applicators on practices such as these to help reduce the risk of harm to the environment, available at: [HYPERLINK "https://seed-treatment-guide.com/"]. The agency encourages public and private participation in creating tools and communication to help reach applicators and educate them on practices that can reduce risks.

V. Conclusion

Strong neonicotinoid product stewardship, which considers the current understanding of potential environmental effects the neonicotinoids have on the environment, and best management practices which encompass practical ideas to reduce potential exposure, are an important component of reducing risks from the neonicotinoid insecticides. The agency supports strong stewardship from all stakeholders, the public, and at all levels of effort.

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[2] *Benefits and Impacts of Potential Mitigation for Neonicotinoid Seed Treatments on Small Grains, Vegetables, and Sugarbeet Crops,* August 30, 2018; *Biological and Economic Analysis Division (BEAD) Response to Public Comments Submitted in Response to BEAD's Assessment entitled "Benefits of Neonicotinoid Seed Treatments to Soybean Production" Dated October 15, 2014, OPP Docket: EPA-HQ-OPP-2014-0737,* December 5, 2017. Both assessments found in clothianidin, imidacloprid, and thiamethoxam.

The technical registrants for the neonicotinoids, including Bayer, BASF, Mitsui, Syngenta, and Valent, coordinated to develop a voluntary proposal to promote product stewardship for seed treatments and applications in agricultural crops, production and landscape ornamental plants, turfgrass and pest-management setting (structural, commercial and residential). Their proposal includes both a summary of their combined current product stewardship program, as well as their proposal for an enhanced registrant-initiated stewardship program for expansion and amplification of stewardship efforts. This document, *Neonicotinoid Stewardship Program – Current Summary and Proposal,* is included in the public docket for each of the neonicotinoids along with the PIDs.

EPA plans to continue to work with its partners at the state, tribal, and federal levels, along with non-governmental organizations to promote pollinator protection education and outreach. This includes coordinating with states/tribes on pollinator protection plans (MP3), coordinating with partners on BMPs extension/education, and continued education and outreach to the public on pollinator protection. The agency plans on continuing conversations with the registrants on their planned and ongoing stewardship efforts.